

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method of manufacturing a crystal of a group III-V crystal compound, characterized in the method comprising:

a deposition step of depositing a metal film on a substrate;

a heat-treatment step of heat-treating the metal film under an atmosphere in which a metal-film patterning compound is present; and

a growth step of growing a group III-V crystal on the post-heat-treated metal film.

Claim 2 (currently amended): A method of manufacturing a crystal of a group III-V crystal compound, characterized in the method comprising:

a deposition step of depositing a metal film on a substrate;

a heat-treatment step of heat-treating the metal film under an atmosphere in which a metal-film patterning compound is present;

a first growth step of growing a group III-V compound buffer film on the post-heat-treated metal film; and

a second growth step of growing a group III-V crystal on the group III-V compound buffer film.

Claim 3 (currently amended): A group III-V crystal manufacturing method as set forth in either claim 1 or 2 claim 1, characterized in that wherein:

~~holes or grooves formed in the metal film by the heat treating of the metal film under an atmosphere in which a patterning compound is present~~

said heat-treatment step have an average width of 2 nm to 5000 nm [1,] ; and

the aperture fraction, being the percentage of the surface area that the holes or grooves occupy with respect to the substrate total surface area, is 5% to 80%.

Claim 4 (currently amended): A group III-V crystal manufacturing method as set forth in any of claims 1 to 3 claim 1, characterized in that the substrate is silicon, sapphire, SiC, ZrB₂, or a group III-V compound.

Claim 5 (currently amended): A group III-V crystal manufacturing method as set forth in any of claims 1 to 4 claim 1, characterized in that the metal film contains titanium or vanadium.

Claim 6 (currently amended): A group III-V crystal manufacturing method as set forth in any of claims 1 to 5, rendering claim 1, wherein the method renders the thickness of the metal film to be 10 nm to 1000 nm.

Claim 7 (currently amended): A group III-V crystal manufacturing method as set forth in any of claims 1 to 6 claim 1, characterized in that the heat treatment is carried out at 800°C to 1200°C for 0.5 minutes to 20 minutes.

Claim 8 (currently amended): A group III-V compound crystal manufactured by a group III-V crystal manufacturing method as set forth in any of claims 1 to 7 claim 1.

Claim 9 (currently amended): A group III-V compound crystal as set forth in claim 8, wherein the group III-V crystal being is $Ga_xAl_yIn_{1-x-y}$ ($0 \leq x \leq 1$ and $0 \leq y \leq 1$).

Claim 10 (new): A group III-V crystal manufacturing method as set forth in claim 2, wherein:

holes or grooves formed in the metal film by said heat-treatment step have an average width of 2 nm to 5000 nm; and the aperture fraction, being the percentage of the surface area that the holes or grooves occupy with respect to the substrate total surface area, is 5% to 80%.

Claim 11 (new): A group III-V crystal manufacturing method as set forth in claim 2, characterized in that the substrate is silicon, sapphire, SiC, ZrB₂, or a group III-V compound.

Claim 12 (new): A group III-V crystal manufacturing method as set forth in claim 2, characterized in that the metal film contains titanium or vanadium.

Claim 13 (new): A group III-V crystal manufacturing method as set forth in claim 2, wherein the method renders the thickness of the metal film to be 10 nm to 1000 nm.

Claim 14 (new): A group III-V crystal manufacturing method as set forth in claim 2, characterized in that the heat treatment is carried out at 800°C to 1200°C for 0.5 minutes to 20 minutes.

Claim 15 (new): A group III-V compound crystal manufactured by a group III-V crystal manufacturing method as set forth in claim 2.

Claim 16 (new): A group III-V compound crystal as set forth in claim 15, wherein the group III-V crystal is $\text{Ga}_x\text{Al}_y\text{In}_{1-x-y}$ ($0 \leq x \leq 1$ and $0 \leq y \leq 1$).